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* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
FILE 'USPAT' ENTERED AT 17:02:28 ON 27 AUG 1999

  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
  *        U. S.   P A T E N T   T E X T   F I L E            *
  *                                                           *
  *  THE WEEKLY PATENT TEXT AND IMAGE DATA IS CURRENT         *
  *  THROUGH AUGUST 24,1999                          *        *
  *                                                           *
  *                                                           *
  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
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5/7/98

```
=> s broome, barry b./in

L1            0 BROOME, BARRY B./IN
                (BROOME, BARRY B/IN)

=> expand broome, bar?/in

E#      FILE             FREQUENCY  TERM
--      ----             ---------  ----
E1      USPAT                    3     BROOME, ANDREW D J/IN
E2      USPAT                    1     BROOME, ARTHUR WILLIAM JAMES/IN
E3      USPAT                    0 --> BROOME, BAR?/IN
E4      USPAT                    1     BROOME, BARRY/IN
E5      USPAT                   17     BROOME, BARRY G/IN
E6      USPAT                    1     BROOME, BARRY GLENN/IN
E7      USPAT                    1     BROOME, E CLARK/IN
E8      USPAT                    1     BROOME, ETRULIA A/IN
E9      USPAT                    3     BROOME, FRANK H/IN
E10     USPAT                    1     BROOME, GORDON H/IN
E11     USPAT                    1     BROOME, J WESLEY/IN
E12     USPAT                    1     BROOME, JACK/IN

=> s e4 or e5 or e6

             1 "BROOME, BARRY"/IN
            17 "BROOME, BARRY G"/IN
             1 "BROOME, BARRY GLENN"/IN
L2          19 "BROOME, BARRY"/IN OR "BROOME, BARRY G"/IN OR "BROOME, BARR
Y G
               LENN"/IN

=> expand richard, jenkin?/in

E#      FILE             FREQUENCY  TERM
--      ----             ---------  ----
E1      USPAT                    1     RICHARD, JEANNE MARIE MONIQUE/IN
E2      USPAT                    3     RICHARD, JENKIN A/IN
E3      USPAT                    0 --> RICHARD, JENKIN?/IN
E4      USPAT                    1     RICHARD, JIMMY W/IN
E5      USPAT                   15     RICHARD, JOEL/IN
E6      USPAT                    4     RICHARD, JOHN E/IN
E7      USPAT                    1     RICHARD, JOHN F/IN
E8      USPAT                    1     RICHARD, JOHN HENRY/IN
E9      USPAT                    1     RICHARD, JOHN J/IN
E10     USPAT                    7     RICHARD, JOSEPH/IN
E11     USPAT                   11     RICHARD, JOSEPH D/IN
E12     USPAT                    2     RICHARD, JOSEPH F R J/IN

=> s e2

L3            3 "RICHARD, JENKIN A"/IN

=> s l2 or l3

L4           22 L2 OR L3

=> display l4

ENTER ANSWER NUMBER OR RANGE (1):1-22

ENTER DISPLAY FORMAT (CIT):cit asn
```

1. 5,940,217, Aug. 17, 1999, Anti-aliasing diffractive aperture and optical system using the same; **Barry G. Broome**, et al., 359/618; 355/67; 359/724, 737, 738, 894; 362/268; 430/396 [IMAGE AVAILABLE]

US PAT NO: 5,940,217 [IMAGE AVAILABLE] L4: 1 of 22
ASSIGNEE: Intel Corporation, Santa Clara, CA (U.S. corp.)

2. 5,892,630, Apr. 6, 1999, Disposable endoscope; **Barry G. Broome**, 359/834, 656, 831 [IMAGE AVAILABLE]

US PAT NO: 5,892,630 [IMAGE AVAILABLE] L4: 2 of 22
ASSIGNEE: Linvatec Corporation, Largo, FL (U.S. corp.)

3. 5,889,278, Mar. 30, 1999, Optical communication device; **Jenkin A. Richard**, 250/214R, 227.11; 359/180, 189, 195; 372/9, 32 [IMAGE AVAILABLE]

US PAT NO: 5,889,278 [IMAGE AVAILABLE] L4: 3 of 22

4. 5,877,493, Mar. 2, 1999, Optical sensing apparatus; **Jenkin A. Richard**, 250/227.11; 356/73.1; 372/9, 32 [IMAGE AVAILABLE]

US PAT NO: 5,877,493 [IMAGE AVAILABLE] L4: 4 of 22

5. 5,646,396, Jul. 8, 1997, Optical position system; **Jenkin A. Richard**, 250/216, 227.11, 559.22, 559.38; 356/73.1, 237.1; 369/122; 372/9, 22 [IMAGE AVAILABLE]

US PAT NO: 5,646,396 [IMAGE AVAILABLE] L4: 5 of 22

6. 5,625,448, Apr. 29, 1997, Fingerprint imaging; Eliseo Ranalli, et al., 356/71 [IMAGE AVAILABLE]

US PAT NO: 5,625,448 [IMAGE AVAILABLE] L4: 6 of 22
ASSIGNEE: Printrak International, Inc., Anaheim, CA (U.S. corp.)

7. 5,519,532, May 21, 1996, Disposable endoscope; **Barry G. Broome**, 359/435, 434, 656 [IMAGE AVAILABLE]

US PAT NO: 5,519,532 [IMAGE AVAILABLE] L4: 7 of 22
ASSIGNEE: Linvatec Corporation, Largo, FL (U.S. corp.)

8. 5,444,569, Aug. 22, 1995, Collapsible terrestrial telescope; **Barry G. Broome**, 359/435, 362, 399, 434 [IMAGE AVAILABLE]

US PAT NO: 5,444,569 [IMAGE AVAILABLE] L4: 8 of 22
ASSIGNEE: Steven Spence Adkinson, Beverly Hills, CA (U.S. indiv.)

9. 5,416,638, May 16, 1995, Disposable endoscope; **Barry G. Broome**, 359/656, 834, 837 [IMAGE AVAILABLE]

US PAT NO: 5,416,638 [IMAGE AVAILABLE] L4: 9 of 22
ASSIGNEE: Linvatec Corporation, Largo, FL (U.S. corp.)

10. 5,377,047, Dec. 27, 1994, Disposable endoscope employing positive and negative gradient index of refraction optical materials; **Barry G. Broome**, et al., 359/654, 362, 652 [IMAGE AVAILABLE]

US PAT NO: 5,377,047 [IMAGE AVAILABLE] L4: 10 of 22
ASSIGNEE: Linvatec Corporation, Largo, FL (U.S. corp.)

11. 5,359,409, Oct. 25, 1994, Diffraction grating position sensing and control for a scanning monochromator; Kenneth R. Wildnauer, et al., 356/334, 328 [IMAGE AVAILABLE]

US PAT NO: 5,359,409 [IMAGE AVAILABLE] L4: 11 of 22
ASSIGNEE: Hewlett-Packard Company, Palo Alto, CA (U.S. corp.)

12. 5,341,240, Aug. 23, 1994, Disposable endoscope; **Barry G. Broome**, 359/435; 348/65; 359/367, 643; 600/163 [IMAGE AVAILABLE]

US PAT NO: 5,341,240 [IMAGE AVAILABLE] L4: 12 of 22
ASSIGNEE: Linvatec Corporation, Largo, FL (U.S. corp.)

13. 5,233,405, Aug. 3, 1993, Optical spectrum analyzer having double-pass monochromator; Kenneth R. Wildnauer, et al., 356/333, 307, 328, 334 [IMAGE AVAILABLE]

US PAT NO: 5,233,405 [IMAGE AVAILABLE] L4: 13 of 22
ASSIGNEE: Hewlett-Packard Company, Palo Alto, CA (U.S. corp.)

14. 4,945,220, Jul. 31, 1990, Autofocusing system for microscope having contrast detection means; Chester L. Mallory, et al., 250/201.3, 201.7 [IMAGE AVAILABLE]

US PAT NO: 4,945,220 [IMAGE AVAILABLE] L4: 14 of 22
ASSIGNEE: Prometrix Corporation, Santa Clara, CA (U.S. corp.)

15. 4,639,127, Jan. 27, 1987, Exposure apparatus for printing system; Jack Beery, et al., 355/35; 250/208.1, 229; 347/136, 255, 256; 355/71, 77; 358/500; 359/276 [IMAGE AVAILABLE]

US PAT NO: 4,639,127 [IMAGE AVAILABLE] L4: 15 of 22
ASSIGNEE: ITT Corporation, New York, NY (U.S. corp.)

16. 4,597,648, Jul. 1, 1986, Keratometer; Steven E. Feldon, et al., 351/212, 205, 221 [IMAGE AVAILABLE]

US PAT NO: 4,597,648 [IMAGE AVAILABLE] L4: 16 of 22
ASSIGNEE: Keratometer Research and Development, Hermosa Beach, CA (U.S. corp.)

17. 4,367,010, Jan. 4, 1983, Erecting telescope; **Barry Broome**, 359/425, 708 [IMAGE AVAILABLE]

US PAT NO: 4,367,010 [IMAGE AVAILABLE] L4: 17 of 22
ASSIGNEE: Sport-O-Scope, Inc., Bethlehem, PA (U.S. corp.)

18. 4,318,089, Mar. 2, 1982, Infrared detector system; Denes E. Frankel, et al., 340/567; 250/342, 353, DIG.1; 340/555; 359/851 [IMAGE AVAILABLE]

US PAT NO: 4,318,089 [IMAGE AVAILABLE] L4: 18 of 22
ASSIGNEE: David Frankel, Lynwood, CA (U.S. indiv.)

19. 4,247,185, Jan. 27, 1981, Microform reader; George D. Margolin, et al., 353/77; 359/456 [IMAGE AVAILABLE]

US PAT NO: 4,247,185 [IMAGE AVAILABLE] L4: 19 of 22

20. 4,126,387, Nov. 21, 1978, Microform reader; **Barry G. Broome**, et al., 353/77, 26R; 359/448, 456, 707 [IMAGE AVAILABLE]

US PAT NO: 4,126,387 [IMAGE AVAILABLE] L4: 20 of 22

21. 3,749,477, Jul. 31, 1973, ANAMORPHIC LENS SYSTEM; John H. Willoughby, et al., 359/671, 710 [IMAGE AVAILABLE]

US PAT NO: 3,749,477 [IMAGE AVAILABLE] L4: 21 of 22

22. 3,676,864, Jul. 11, 1972, OPTICAL MEMORY APPARATUS; Douglas Raymond Maure, et al., 365/127; 250/208.3, 237R; 359/618 [IMAGE AVAILABLE]

US PAT NO: 3,676,864 [IMAGE AVAILABLE] L4: 22 of 22
ASSIGNEE: Optical Memory Systems, Inc., Santa Ana, CA

=> s second (2w) (light or laser or source)

```
       1670043 SECOND
        682667 LIGHT
        133604 LASER
        770207 SOURCE
L5       44813 SECOND (2W) (LIGHT OR LASER OR SOURCE)
```

=> s dvd or different thickness?

```
           734 DVD
       1289170 DIFFERENT
        606639 THICKNESS?
```

```
         16187 DIFFERENT THICKNESS?
                 (DIFFERENT(W)THICKNESS?)
L6       16875 DVD OR DIFFERENT THICKNESS?

=> s l5 and l6

L7         480 L5 AND L6

=> s numerica aperture

            22 NUMERICA
        259967 APERTURE
L8           0 NUMERICA APERTURE
                 (NUMERICA(W)APERTURE)

=> s numericl aperture

             9 NUMERICL
        259967 APERTURE
L9           1 NUMERICL APERTURE
                 (NUMERICL(W)APERTURE)

=> s numerical aperture

         77468 NUMERICAL
        259967 APERTURE
L10       6366 NUMERICAL APERTURE
                 (NUMERICAL(W)APERTURE)

=> s l7 and l10

L11         68 L7 AND L10

=> s l11 and 369/94/cclst

           174 369/94/CCLST
L12         16 L11 AND 369/94/CCLST

=> display l12

ENTER ANSWER NUMBER OR RANGE (1):end


=> s second (w) (n.a. or na or numerical aperture)

       1670043 SECOND
        732805 N.A.
                 (N)
        115307 NA
         77468 NUMERICAL
        259967 APERTURE
          6366 NUMERICAL APERTURE
                 (NUMERICAL(W)APERTURE)
L13       4551 SECOND (W) (N.A. OR NA OR NUMERICAL APERTURE)

=> s l12 and l13

L14          2 L12 AND L13

=> d his


     (FILE 'USPAT' ENTERED AT 17:02:28 ON 27 AUG 1999)
L1           0 S BROOME, BARRY B./IN
               EXPAND BROOME, BAR?/IN
L2          19 S E4 OR E5 OR E6
               EXPAND RICHARD, JENKIN?/IN
L3           3 S E2
L4          22 S L2 OR L3
L5       44813 S SECOND (2W) (LIGHT OR LASER OR SOURCE)
L6       16875 S DVD OR DIFFERENT THICKNESS?
L7         480 S L5 AND L6
L8           0 S NUMERICA APERTURE
L9           1 S NUMERICL APERTURE
L10       6366 S NUMERICAL APERTURE
```

```
L11          68 S L7 AND L10
L12          16 S L11 AND 369/94/CCLST
L13        4551 S SECOND (W) (N.A. OR NA OR NUMERICAL APERTURE)
L14           2 S L12 AND L13

=> s l5 and l13

L15        727 L5 AND L13

=> s l6 and l15

L16         11 L6 AND L15

=> s l14 or l12 or l16

L17         25 L14 OR L12 OR L16

=> sel l17 1-25 ccls

E1 THROUGH E47 ASSIGNED

=> d sel e1-10

E#      FILE            FREQUENCY  TERM
--      ----            ---------  ----
E1      USPAT               17     369/112/CCLS
E2      USPAT               16     369/94/CCLS
E3      USPAT                8     369/44.23/CCLS
E4      USPAT                5     369/109/CCLS
E5      USPAT                5     369/44.24/CCLS
E6      USPAT                5     369/44.37/CCLS
E7      USPAT                4     369/103/CCLS
E8      USPAT                4     369/118/CCLS
E9      USPAT                3     369/58/CCLS
E10     USPAT                2     359/19/CCLS

=> d l17 1-25 pno

1.      5,933,401      [IMAGE AVAILABLE]
2.      5,912,868      [IMAGE AVAILABLE]
3.      5,905,707      [IMAGE AVAILABLE]
4.      5,894,464      [IMAGE AVAILABLE]
5.      5,883,874      [IMAGE AVAILABLE]
6.      5,872,022      [IMAGE AVAILABLE]
7.      5,870,371      [IMAGE AVAILABLE]
8.      5,870,369      [IMAGE AVAILABLE]
9.      5,867,468      [IMAGE AVAILABLE]
10.     5,841,753      [IMAGE AVAILABLE]
11.     5,835,473      [IMAGE AVAILABLE]
12.     5,815,293      [IMAGE AVAILABLE]
13.     5,809,000      [IMAGE AVAILABLE]
14.     5,808,999      [IMAGE AVAILABLE]
15.     5,802,037      [IMAGE AVAILABLE]
16.     5,777,970      [IMAGE AVAILABLE]
17.     5,761,176      [IMAGE AVAILABLE]
18.     5,757,296      [IMAGE AVAILABLE]
19.     5,687,154      [IMAGE AVAILABLE]
20.     5,677,903      [IMAGE AVAILABLE]
21.     5,463,234      [IMAGE AVAILABLE]
22.     5,446,565      [IMAGE AVAILABLE]
23.     5,408,453      [IMAGE AVAILABLE]
24.     4,958,321      [IMAGE AVAILABLE]
25.     4,015,281      [IMAGE AVAILABLE]

=> display l17

ENTER ANSWER NUMBER OR RANGE (1):1-25

ENTER DISPLAY FORMAT (CIT):cit asn


1.  5,933,401, Aug. 3, 1999, Optical pickup having plural optical sources
and plural optical detectors; Chul-woo Lee, et al., 369/112, 44.23,
44.37, 94 [IMAGE AVAILABLE]
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US PAT NO: 5,933,401 [IMAGE AVAILABLE] L17: 1 of 25
ASSIGNEE: Samsung Electronics Co., Ltd., Suwon-City, Republic of Korea (foreign corp.)

2. 5,912,868, Jun. 15, 1999, Optical head for reproducing data from first and second optical disks; Hideki Hayashi, et al., 369/58, 44.24, **94** [IMAGE AVAILABLE]

US PAT NO: 5,912,868 [IMAGE AVAILABLE] L17: 2 of 25
ASSIGNEE: Matsushita Electric Industrial Co., Ltd., Kadoma, Japan (foreign corp.)

3. 5,905,707, May 18, 1999, Optical grating for a bifocal access head of optical disk drive devices; Jau-Jiu Ju, et al., 369/109, 58, **94**, 112 [IMAGE AVAILABLE]

US PAT NO: 5,905,707 [IMAGE AVAILABLE] L17: 3 of 25
ASSIGNEE: Industrial Technology Research Institute, tAIWAN, pROVINCE OF cHINA (foreign corp.)

4. 5,894,464, Apr. 13, 1999, Hologram optical pick-up using two laser sources; Jin-hwan Kim, et al., 369/103, 44.37, **94**, 109, 112 [IMAGE AVAILABLE]

US PAT NO: 5,894,464 [IMAGE AVAILABLE] L17: 4 of 25
ASSIGNEE: Samsung Electronics Co., Ltd., Kyungki-do, Republic of Korea (foreign corp.)

5. 5,883,874, Mar. 16, 1999, Optical pickup system for selectively reading a multiple number of optical disks; Yang-Oh Choi, 369/112, 44.37, **94** [IMAGE AVAILABLE]

US PAT NO: 5,883,874 [IMAGE AVAILABLE] L17: 5 of 25
ASSIGNEE: Daewoo Electronics Co., Ltd., Seoul, Republic of Korea (foreign corp.)

6. 5,872,022, Feb. 16, 1999, Method for etching a semiconductor method for fabricating semiconductor device method for fabricating semiconductor laser and semiconductor laser; Takashi Motoda, et al., 438/39, 47, 718 [IMAGE AVAILABLE]

US PAT NO: 5,872,022 [IMAGE AVAILABLE] L17: 6 of 25
ASSIGNEE: Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan (foreign corp.)

7. 5,870,371, Feb. 9, 1999, Optical pickup device which can be adapted to plurality of types of optical disks; Yoichi Tsuchiya, et al., 369/112; 359/813, 821; 369/44.14, **94** [IMAGE AVAILABLE]

US PAT NO: 5,870,371 [IMAGE AVAILABLE] L17: 7 of 25
ASSIGNEE: Sanyo Electric Co., Ltd, Osaka, Japan (foreign corp.)

8. 5,870,369, Feb. 9, 1999, Objective lens device including an objective lens and a transparent member having two light control portions and optical pickup using the objective lens device; Chong-sam Chung, et al., 369/112, 44.24, **94**, 118 [IMAGE AVAILABLE]

US PAT NO: 5,870,369 [IMAGE AVAILABLE] L17: 8 of 25
ASSIGNEE: Samsung Electronics Co., Ltd., Kyungki-do, Republic of Korea (foreign corp.)

9. 5,867,468, Feb. 2, 1999, Optical pickup with a vertically movable aperture means; Taiichi Mori, et al., 369/112, 44.23, 44.24, **94**, 103, 109, 118 [IMAGE AVAILABLE]

US PAT NO: 5,867,468 [IMAGE AVAILABLE] L17: 9 of 25
ASSIGNEE: Matsushita Electric Industrial Co., Ltd., Osaka, Japan (foreign corp.)

10. 5,841,753, Nov. 24, 1998, Multi-layer information storage system with improved aberration correction; Antonius H. M. Holtslag, et al., **369/94**, 44.11, 112 [IMAGE AVAILABLE]

US PAT NO: 5,841,753 [IMAGE AVAILABLE] L17: 10 of 25
ASSIGNEE: U.S. Philips Corporation, New York, NY (U.S. corp.)

11. 5,835,473, Nov. 10, 1998, Optical pick-up, optical data recording apparatus and objective lens for optical data recording material; Hiroaki Shimozono, et al., 369/112; 396/94 [IMAGE AVAILABLE]

US PAT NO: 5,835,473 [IMAGE AVAILABLE] L17: 11 of 25
ASSIGNEE: Asahi Glass Company Ltd., Tokyo, Japan (foreign corp.)

12. 5,815,293, Sep. 29, 1998, Compound objective lens having two focal points; Yoshiaki Komma, et al., 359/19, 569, 570, 721, 743; 369/44.23, 103, 112 [IMAGE AVAILABLE]

US PAT NO: 5,815,293 [IMAGE AVAILABLE] L17: 12 of 25
ASSIGNEE: Matsushita Electric Industrial Co., Ltd., Osaka, Japan (foreign corp.)

13. 5,809,000, Sep. 15, 1998, Optical pickup system for reading optical disks of **different thicknesses**; Yang-Oh Choi, 369/112, 44.23, 44.24, **94**, 109, 118 [IMAGE AVAILABLE]

US PAT NO: 5,809,000 [IMAGE AVAILABLE] L17: 13 of 25
ASSIGNEE: Daewoo Electronics, Co., Ltd., Seoul, Republic of Korea (foreign corp.)

14. 5,808,999, Sep. 15, 1998, Optical pickup apparatus and objective lens for optical pickup apparatus; Katsuya Yagi, 369/112, 44.12, 44.24, 44.37 [IMAGE AVAILABLE]

US PAT NO: 5,808,999 [IMAGE AVAILABLE] L17: 14 of 25
ASSIGNEE: Konica Corporation, Tokyo, Japan (foreign corp.)

15. 5,802,037, Sep. 1, 1998, Optical detector with two detecting regions for reproducing and recording information on two kinds of disks having **different thicknesses**; Chul-woo Lee, et al., 369/120, 44.23, 44.42, **94** [IMAGE AVAILABLE]

US PAT NO: 5,802,037 [IMAGE AVAILABLE] L17: 15 of 25
ASSIGNEE: Samsung Electronics Co., Ltd., Kyungki-do, Republic of Korea (foreign corp.)

16. 5,777,970, Jul. 7, 1998, Optical disk readout apparatus; Seiji Kajiyama, et al., **369/94**, 48, 58, 59 [IMAGE AVAILABLE]

US PAT NO: 5,777,970 [IMAGE AVAILABLE] L17: 16 of 25
ASSIGNEE: Sanyo Electric Co., Ltd., Osaka, Japan (foreign corp.)

17. 5,761,176, Jun. 2, 1998, Optical head device with optically variable aperture for disks with **different thicknesses**; Jun-ichi Takahashi, 369/109, 44.23, **94**, 112, 118 [IMAGE AVAILABLE]

US PAT NO: 5,761,176 [IMAGE AVAILABLE] L17: 17 of 25
ASSIGNEE: NEC Corporation, Japan (foreign corp.)

18. 5,757,296, May 26, 1998, Data decoding apparatus and method and recording medium; Yoshiyuki Ishizawa, 341/95, 59 [IMAGE AVAILABLE]

US PAT NO: 5,757,296 [IMAGE AVAILABLE] L17: 18 of 25
ASSIGNEE: Kabushiki Kaisha Toshiba, Kawasaki, Japan (foreign corp.)

19. 5,687,154, Nov. 11, 1997, Optical pickup device which can be adapted to plurality of types of optical disks; Yoichi Tsuchiya, et al., 369/112; 359/813, 821 [IMAGE AVAILABLE]

US PAT NO: 5,687,154 [IMAGE AVAILABLE] L17: 19 of 25
ASSIGNEE: Sanyo Electric Co., Ltd., Osaka, Japan (foreign corp.)

20. 5,677,903, Oct. 14, 1997, Multi-layer information storage system with improved aberration correction; Antonius H. M. Holtslag, et al., 369/112, **94** [IMAGE AVAILABLE]

US PAT NO: 5,677,903 [IMAGE AVAILABLE] L17: 20 of 25
ASSIGNEE: U.S. Phillips Corporation, New York, NY (U.S. corp.)

21. 5,463,234, Oct. 31, 1995, High-speed semiconductor gain memory cell with minimal area occupancy; Akira Toriumi, et al., 257/296, 300, 368, 410, 622 [IMAGE AVAILABLE]

US PAT NO: 5,463,234 [IMAGE AVAILABLE] L17: 21 of 25
ASSIGNEE: Kabushiki Kaisha Toshiba, Kawasaki, Japan (foreign corp.)

22. 5,446,565, Aug. 29, 1995, Compound objective lens having two focal points; Yoshiaki Komma, et al., 359/19; 369/44.23, **94**, 103, 112 [IMAGE AVAILABLE]

US PAT NO: 5,446,565 [IMAGE AVAILABLE] L17: 22 of 25
ASSIGNEE: Matsushita Electric Industrial Co., Ltd., Osaka, Japan (foreign corp.)

23. 5,408,453, Apr. 18, 1995, Method of and apparatus for optically writing, reading and erasing a multi-plane record carrier, and record carrier suitable for said method and apparatus; Antonius H. M. Holtslag, et al., 369/44.23, 44.28, 44.37, 44.38, **94**, 112, 275.4, 284 [IMAGE AVAILABLE]

US PAT NO: 5,408,453 [IMAGE AVAILABLE] L17: 23 of 25
ASSIGNEE: U.S. Philips Corporation, New York, NY (U.S. corp.)

24. 4,958,321, Sep. 18, 1990, One transistor flash EPROM cell; Chi Chang, 365/185.3, 185.33, 218 [IMAGE AVAILABLE]

US PAT NO: 4,958,321 [IMAGE AVAILABLE] L17: 24 of 25
ASSIGNEE: Advanced Micro Devices, Inc., Sunnyvale, CA (U.S. corp.)

25. 4,015,281, Mar. 29, 1977, MIS-FETs isolated on common substrate; Minoru Nagata, et al., 257/392, 395, 405, 411; D25/23, 31 [IMAGE AVAILABLE]

US PAT NO: 4,015,281 [IMAGE AVAILABLE] L17: 25 of 25
ASSIGNEE: Hitachi, Ltd., Japan (foreign corp.)

=> file jpoab

FILE 'JPOABS' ENTERED AT 17:20:52 ON 27 AUG 1999

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  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
  *     J A P A N E S E   P A T E N T   A B S T R A C T S     *
  *                                                           *
  * DATA IS LOADED THROUGH DECEMBER 24, 1996, FOR THE JAPANESE *
  * PATENT OFFICE ABSTRACT (JPOABS) FILE.  NEW RECORDS ARE NOT *
  * BEING ADDED.  PLEASE USE THE GPI-JPO FILE (JPO) WHICH IS   *
  * CURRENT THROUGH APRIL 31, 1999 (SEE BELOW).                *
  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
  *     GLOBAL PATENT INFORMATION-JAPANESE PATENT OFFICE FILE  *
  *                          (GPI-JPO FILE)                   *
  *                                                           *
  * THE FILE IS CURRENT THROUGH APRIL 31, 1999.               *
  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
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IRD CNOABS

=> d his

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     (FILE 'USPAT' ENTERED AT 17:02:28 ON 27 AUG 1999)
L1            0 S BROOME, BARRY B./IN
                EXPAND BROOME, BAR?/IN
L2           19 S E4 OR E5 OR E6
                EXPAND RICHARD, JENKIN?/IN
L3            3 S E2
L4           22 S L2 OR L3
L5        44813 S SECOND (2W) (LIGHT OR LASER OR SOURCE)
L6        16875 S DVD OR DIFFERENT THICKNESS?
L7          480 S L5 AND L6
L8            0 S NUMERICA APERTURE
L9            1 S NUMERICL APERTURE
L10        6366 S NUMERICAL APERTURE
```

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L11          68 S L7 AND L10
L12          16 S L11 AND 369/94/CCLST
L13        4551 S SECOND (W) (N.A. OR NA OR NUMERICAL APERTURE)
L14           2 S L12 AND L13
L15         727 S L5 AND L13
L16          11 S L6 AND L15
L17          25 S L14 OR L12 OR L16
                SEL L17 1-25 CCLS

     FILE 'JPOABS' ENTERED AT 17:20:52 ON 27 AUG 1999

=> s l15

        261092 SECOND
        320163 LIGHT
         96546 LASER
        259324 SOURCE
          4093 SECOND (2W) (LIGHT OR LASER OR SOURCE)
        261092 SECOND
        307581 N.A.
                 (N)
         13659 NA
         13166 NUMERICAL
         26345 APERTURE
          1043 NUMERICAL APERTURE
                 (NUMERICAL(W)APERTURE)
           601 SECOND (W) (N.A. OR NA OR NUMERICAL APERTURE)
L18          8 L5 AND L13

=> display l18

ENTER ANSWER NUMBER OR RANGE (1):1-8

ENTER DISPLAY FORMAT (CIT):all
```

02-303159. Dec. 17, 1990 L18: 1 of 8

SEMICONDUCTOR DEVICE

INVENTOR: TAKESHI ODA
ASSIGNEE: MITSUBISHI ELECTRIC CORP
APPL NO: 01-127204
DATE FILED: May 18, 1989
PATENT ABSTRACTS OF JAPAN
ABS GRP NO: E1040
ABS VOL NO: Vol. 15, No. 90
ABS PUB DATE: Mar. 5, 1991
INT-CL: H01L 27/095; H01L 21/337; H01L 29/808

ABSTRACT:

PURPOSE:To obtain a high-breakdown-strength semiconductor device easily by a method wherein one open electrode of a first JFET of a JFET pair is connected to one electrode of a transistor at a first connection point, a control terminal of the first JFET is connected to a control terminal of the transistor and a control terminal of a second JFET of the JFET pair is connected to the first connection point.

CONSTITUTION:An npn transistor 30 is constituted, on a semiconductor substrate 1, of a first n.sup.- semiconductor layer 3, a base region 6, a collector contact region 7 and an emitter region 8. An n-ch JFET 41 is constituted of a **second** n.sup.- semiconductor layer 4, a gate region 9, a source region 10 and a drain region 11. In addition, a **second** n-ch JFET 42 is constituted, on the semiconductor substrate 1, of a third n.sup.- semiconductor layer 74, a gate region 79, a source region 80 and a drain region 81. The base region 6 is connected to the gate region 9; a first connection point 51 of the collector contact region 7 and the source region 10 is connected to the second gate region 79; the drain region 11 is connected to the **second source** region 80.i

01-278771 Nov. 9, 1989 L18: 2 of 8

INPUT PROTECTIVE DEVICE OF SEMICONDUCTOR INTEGRATED CIRCUIT

INVENTOR: NATSUKO YOSHIDA
ASSIGNEE: NEC CORP, et al. (50)
APPL NO: 63-109671
DATE FILED: May 2, 1988
PATENT ABSTRACTS OF JAPAN
ABS GRP NO: E0882
ABS VOL NO: Vol. 14, No. 55
ABS PUB DATE: Jan. 31, 1990
INT-CL: H01L 27/08; H01L 23/00; H01L 27/04; H01L 27/06; H01L 29/78; H03F 1/52

ABSTRACT:

PURPOSE:To improve an integrated circuit in an electrostatic breakdown strength by a method wherein an inductance element is provided between the node of a first and a **second N** channel transistor and an input terminal, and a capacitance element and a resistance element are provided between a gate of the first 11 channel transistor and the input terminal and a **second** power **source** terminal respectively.

CONSTITUTION:A capacitance element 2 and a resistance element 8-2 are provided between a gate of an N channel transistor 9 and an input terminal 1 to make a gate potential of the N channel transistor 9 higher than V.sub.s.sub.s and the threshold of the N channel transistor 9 higher. Moreover, an inductance element 3 is provided between the input terminal 1 and the node of the N channel transistors 9 and 10 to make a peak voltage of a static electricity lag and a static electricity flow as a transistor current after the N channel transistor 9 whose threshold grows higher is made to be in an ON state. By these processes, an integrated circuit of this design can be improved in an electrostatic breakdown strength.n

01-140678 Jun. 1, 1989 L18: 3 of 8
PHOTODETECTOR

INVENTOR: KENICHI MATSUDA, et al. (1)
ASSIGNEE: MATSUSHITA ELECTRIC IND CO LTD
APPL NO: 62-298384
DATE FILED: Nov. 26, 1987
PATENT ABSTRACTS OF JAPAN
ABS GRP NO: E814
ABS VOL NO: Vol. 13, No. 393
ABS PUB DATE: Aug. 31, 1989
INT-CL: H01L 31/10; H01L 27/14; //G02B 6/12

ABSTRACT:

PURPOSE:To provide a photodetector operable at high speed and to facilitate application thereof in an photoelectronic integrated circuit, by inverting conductivity type of first and **second light** absorbing layers so that p-n junctions are formed vertically to a substrate.

CONSTITUTION:A linear groove is formed in a semi-insulating semiconductor substrate 13. First and **second n-type light** absorbing layers 14, 15 are formed by crystal growth such that they border the groove vertically and that they have flat surfaces. A p-type dopant is diffused in a part of the first and **second light** absorbing layers 14, 15 so that p-n junctions 20, 21 are formed along the groove. Reverse bias is applied to the P-N junctions 20, 21 of the first and **second light** absorbing layers 14, 15, so that depletion layers are extended into optical guides and the first and **second light** absorbing layers 14, 15 are caused to function as a p-i-n photodiode. Namely, the conductivity type of the first and **second light** absorbing layers 14, 15 are inverted so that p-n junctions are formed along first and second optical guides 16, 17 vertically to the substrate 13. A photodetector thus constructed is allowed to operate at high speed and can be integrated easily with other electronic elements.

01-64263 Mar. 10, 1989 L18: 4 of 8
SEMICONDUCTOR DEVICE AND ITS MANUFACTURE

INVENTOR: MUNENARI KAKUMOTO, et al. (1)
ASSIGNEE: TOSHIBA CORP
APPL NO: 62-219136
DATE FILED: Sep. 3, 1987
PATENT ABSTRACTS OF JAPAN
ABS GRP NO: E778
ABS VOL NO: Vol. 13, No. 277
ABS PUB DATE: Jun. 26, 1989
INT-CL: H01L 29/80; H01L 21/265

ABSTRACT:

PURPOSE:To restrain short channel effect, and improve high frequency characteristics of saturation property, mutual conductance, and NF, by making the depth of an N.sup.+ drain region shallower than an N.sup.+ source region.

CONSTITUTION:The depth of an N.sup.+ drain region 22b just under a drain electrode 25b is made shallower than an N.sup.+ source region 22a just under a source electrode 25a. For example, Si ions are implanted with implantation energy of 250KeV and dosage of 5.times.10.sup.1.sup.3cm.sup.-.sup.2, in a specified region of a semiinsulating GaAs substrate 21. Next, Si ion is implanted with implantation energy of 80KeV and dosage of 2.times.10.sup.1.sup.2cm.sup.-.sup.2 to form an N.sup.- channel layer 23. A gate electrode 24 composed of high melting metal is formed by lift-off art or the like. Under the condition of ion implantation energy of 80KeV and dosage of 5.times.10.sup.1.sup.3cm.sup.-.sup.2, Si ions implanted in the N.sup.+ drain layer 22b, and a **second** N.sup.+ drain layer 27b and a **second** N.sup.+ **source** layer 27a of low resistance.

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MULTIWAVELENGTH LIGHT SOURCE SEMICONDUCTOR ELEMENT

INVENTOR: TOMOO YANASE
ASSIGNEE: NEC CORP
APPL NO: 62-207892
DATE FILED: Aug. 20, 1987
PATENT ABSTRACTS OF JAPAN
ABS GRP NO: E771
ABS VOL NO: Vol. 13, No. 251
ABS PUB DATE: Jun. 12, 1989
INT-CL: H01S 3/18; H01L 33/00

ABSTRACT:

PURPOSE:To prevent light emitting characteristics from deteriorating by disposing a plurality of light emitting units made of different material compositions perpendicularly to the surface of a semiconductor substrate, and forming an element isolation layer between the units of a high resistance semiconductor layer having a lower refractive index than that of the material of the units.

CONSTITUTION:A first light emitting unit 11 and a **second light** emitting unit 12 are formed on a high resistance N-type InP substrate 19, and high resistance element isolating layers 13 made of high resistance epitaxial layers are formed between two light emitting layers on upper and lower parts. First P-type clad layers 14, 15 and **second** n-type clad layers 16, 17 are formed at both sides of the units 11, 12, and a high resistance element isolation layer 18 made of a high resistance epitaxial layer is formed between the two clad layers. Accordingly, an electric resistance between the units 11 and 12 becomes very high, leakage currents become low, and the layers 13 have lower refractive indices than those of the units 11, 12. Therefore, the layers 11, 12 have waveguide structure. Thus, emitting light can be efficiently guided.

01-42165 Feb. 14, 1989 L18: 6 of 8
COMS SEMICONDUCTOR IC DEVICE

INVENTOR: TAKEHIDE SHIRATO
ASSIGNEE: FUJITSU LTD

APPL NO: 62-198402
DATE FILED: Aug. 7, 1987
PATENT ABSTRACTS OF JAPAN
ABS GRP NO: E767
ABS VOL NO: Vol. 13, No. 240
ABS PUB DATE: Jun. 6, 1989
INT-CL: H01L 27/08; H01L 21/76

ABSTRACT:

PURPOSE:To expand the function of a semiconductor IC by forming a stacked circuit of transistors each having a double conductive type channel on the same substrate without variations of the characteristics due to a substrate effect.

CONSTITUTION:A p-Tr having a channel of the same conduction type as that of a substrate 1 is formed for each transistor in a first independent n.sup.- type well 2A of the opposite conduction type to that of the substrate 1, allowing the source region 9 of the p-Tr and the first n.sup.- type well 2A to be connected with each other at the same potential through a first source wiring 17. Hereby, a substrate effect is removed. Additionally, part of n-Tr having a channel of the opposite conduction type to that of the substrate 1 is formed in a p.sup.- type well 3 of the same conduction type as that of the substrate, which well is formed in an independent **second** n.sup.- type well 2B of the opposite conduction type to that of the substrate 1 and adapted to float from the substrate 1. And, a source region 12 of n-Tr and the p.sup.- type well 3 and the **second** n.sup.- type well 2B, in which n-Tr is disposed, are connected with each other on the same potential through a **second source** wiring 20. Hereby, the substrate effect is removed. Thus, circuit conductance is prevented from lowering owing to the rise of the threshold voltage of stacked transistors.

61-182244 Aug. 14, 1986 L18: 7 of 8
SEMICONDUCTOR DEVICE

INVENTOR: KEIJI KAWABATA
ASSIGNEE: MITSUBISHI ELECTRIC CORP
APPL NO: 60-23264
DATE FILED: Feb. 7, 1985
PATENT ABSTRACTS OF JAPAN
ABS GRP NO: E469
ABS VOL NO: Vol. 11, No. 7
ABS PUB DATE: Jan. 9, 1987
INT-CL: H01L 21/82; H01L 27/08

ABSTRACT:

PURPOSE:To achieve a device suited for both of digital and analog circuits by deviding a P-channel source, drain region and an N-channel source, drain region into two-sources of drain-formation regions.

CONSTITUTION:A region for forming a P-channel source and drain is divided into first and **second** P-channel **source** and drain-formation regions 32a.sub.1 and 32a.sub.2. Also, a region for forming an N-channel source and drain is divided into first and **second** N-channel **source** and drain-formation regions 32b.sub.1 and 32b.sub.2. In the drawing, 31a, 32b are gate electrodes. With this constitution, by commonly connecting the regions 32a.sub.1, 32a.sub.2 and 32b.sub.1, 32b.sub.2 isolated from one another, they are operated respectively as one P- and N-channel MOSFET for a digital circuit. On the other hand, as an analog circuit, an arbitrary number of individual P- and N-channel MOSFETs isolated from one another are connected in parallel to provide a necessary transistor size.

57-10979 Jan. 20, 1982 L18: 8 of 8
ELECTROSTATIC TYPE INDUCTION SEMICONDUCTOR DEVICE

INVENTOR: MICHIO KOTANI
ASSIGNEE: MITSUBISHI DENKI KK
APPL NO: 55-86996
DATE FILED: Jun. 23, 1980

PATENT ABSTRACTS OF JAPAN
ABS GRP NO: E105
ABS VOL NO: Vol. 6, No. 72
ABS PUB DATE: May 7, 1982
INT-CL: H01L 29/80

ABSTRACT:

PURPOSE:To perform the switching of current path by repeatedly and consequtively arranging the first gate regions, the first source regions, and the second gate regions in a line on an N type semiconductor substrate.

CONSTITUTION:The first P.sup.+ gate 8, the first N.sup.+ source 9, the second p.sup.+ gate 10, the third P.sup.+ gate 11, the **second** N.sup.+ **source**, and the fourth P.sup.+ gate are consecutively arranged on an N type semiconductor substrate 6 having a drain region 7. With the first gate 8 and the second gate 10 kept at zero electric potential, and the third gate 11 and the fourth gate 13 at negative bias, the potential barrier PB at the front of the first source 9 becomes low and the PB at the front of the **second source** 12 high and the first channel CH.sub.1 is conducted and the second channel CH.sub.2 is not conducted. With the first gate 8 and the second gate 10 kept at negative voltage and the third gate 11 and the fourth gate 13 at zero electric potential, only the CH.sub.2 is conducted.

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L1            0 S BROOME, BARRY B./IN
                EXPAND BROOME, BAR?/IN
L2           19 S E4 OR E5 OR E6
                EXPAND RICHARD, JENKIN?/IN
L3            3 S E2
L4           22 S L2 OR L3
L5        44813 S SECOND (2W) (LIGHT OR LASER OR SOURCE)
L6        16875 S DVD OR DIFFERENT THICKNESS?
L7          480 S L5 AND L6
L8            0 S NUMERICA APERTURE
L9            1 S NUMERICL APERTURE
L10        6366 S NUMERICAL APERTURE
L11          68 S L7 AND L10
L12          16 S L11 AND 369/94/CCLST
L13        4551 S SECOND (W) (N.A. OR NA OR NUMERICAL APERTURE)
L14           2 S L12 AND L13
L15         727 S L5 AND L13
L16          11 S L6 AND L15
L17          25 S L14 OR L12 OR L16
                SEL L17 1-25 CCLS

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L18           8 S L15
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